Powder Coat Test Protocol

- Fluid Resistance per 3.8.1 of MIL-PRF-85285
- Lubricating oil (MIL-L-23699) at 250°±5°F
- Powder coat passed
- Hydraulic fluid (MILH-83282) at 150°±5°F
- Powder coat passed
- Recoatability
- Applying MIL-PRF-85285 over powder coat
- No adhesion incompatibility

CORROSION - SALT FOG ASTM B117
IVD 1010 PANELS

- Powder coat (TGIC) performed as good as if not better than MIL-PRF-85285
- Water immersion affects salt fog resistance
- For both coating systems

Panels were salt fog tested for 30 days, unscribed per requirements of AMS-P-38336 prior to scribing and re-testing

Corrosion Test Results
1010 IVD Panels

500 Hours

1,000 Hours

MIL-PRF-85582,
MIL-PRF-85285

MIL-PRF-85582
Powder TGIC

CORROSION - SALT FOG ASTM B117

IVI

- Powder coat (TGIC) performed as good as if not better than MIL-PRF-85285
- Conversion coating the IVD did not appear to make a significant difference.

Panels were salt fog tested for 30 days, unscribed per requirements of AMS-P-38336 prior to scribing and re-testing

Corrosion Test Results
4340 IVD Panels

500 Hours

1,000 Hours

MIL-PRF-85582 Powder TGIC	MIL-PRF-85582, MIL-PRF-85285

CORROSION - SALT FOG ASTM B117
Bare 1010 PANELS
Different surface treatments and primers

- Solvent-based epoxy-polyamide primer (MIL-DTL-24441/20) did not outperform the waterborne (MIL-PRF-85582, type I)
- Most significant corrosion improvement found by phosphating prior to priming (MIL-P-16232)
- Powder coat as good as topcoat (MIL-PRF-85285)

Corrosion Test Results
1010 Panels

MIL-PRF-85582
Powder TGIC

	500	**1,000**	**1,500**

MIL-PRF-85582,
MIL-PRF-85285

Corrosion Test Results
1010 Panels

MIL-P-16232, type M MIL-PRF-85582, MIL-PRF-85285	**500**	**1,000**	**1,500**
MIL-P-16232, type M MIL-PRF-85582 Powder TGIC			

Proposed Process Changes

- Current Process
- Steel Parts that are IVD
- Conversion coat
- Prime (waterborne)
- Topcoat (MIL-PRF-85285)

- Proposed Process
- Steel Parts that are IVD
- Conversion coat
- Prime (waterborne)
- Powder coat (TGIC)
- Bare steel parts
- Phosphate
- Prime
- Powder

Sample Proposed Parts

- Oxygen bottles
- P3 MLG Piston
- P3 MLG Cylinder
- P3 MLG Trunion
- F14 Engine Mounts
- EA-6B Duct Assy. Air Inlet

FUTURE POTENTIAL

- Change from epoxy primer to zinc-rich powder primer
- High temperature applications